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FROM: Winston Hsu, PATENT AGENT, REG. NO.: 41,526

SERIAL NO.: 10/605,721

ATTORNEY DOCKET NO.: AITP0001USA

**SUBJECT: REQUEST FOR CERTIFICATE OF
CORRECTION**

TOTAL PAGES: 11 PAGES (INCLUDING COVER PAGE)

Winston Hsu JUL 15 2005

AITP0001USA0_AS_1

JUL 20 2005

PTO/SB/97 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

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Application Number: 10/605,721

(1) Transmittal Form	1 PAGE
(2) Fee Transmittal Form	1 PAGE
(3) Statement of request for COC	2 PAGES
(4) Attachments	5 PAGES

This collection of information is required by 37 CFR 1.8. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1.8 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/21 (09-04)

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/605,721	
	Filing Date	10/22/2003	
	First Named Inventor	Guang-Nan Tzeng	
	Art Unit	2838	
	Examiner Name	Adolf Berhane	
Total Number of Pages in This Submission	9	Attorney Docket Number	AITP0001USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): -Statement of request for COC -A copy of the front page of the Patent -A copy of the filing receipt -A copy of assignment document
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	North America Intellectual Property Corporation		
Signature	<i>Winston Hsu</i>		
Printed name	Winston Hsu		
Date	JUL 15 2005	Reg. No.	41,526

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

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PTO/SB/17 (12-04)

Approved for use through 07/31/2006. OMB 0651-0032

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Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 0.00

Complete if Known

Application Number	10/605,721
Filing Date	10/22/2003
First Named Inventor	Guang-Nan Tzeng
Examiner Name	Adolf Berhane
Art Unit	2838
Attorney Docket No.	AITP0001USA

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-3105 Deposit Account Name: North America Intellectual Property Corp.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
_____ - 20 or HP = _____ x _____ = _____						
HP = highest number of total claims paid for, if greater than 20						
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)			
_____ - 3 or HP = _____ x _____ = _____						
HP = highest number of independent claims paid for, if greater than 3						

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____ - 100 = _____ / 50 = _____ (round up to a whole number) x _____ = _____				

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other: _____

SUBMITTED BY

Signature	<u>Winston Hsu</u>	Registration No. 41,526 (Attorney/Agent)	Telephone 302-729-1562
Name (Print/Type)	Winston Hsu	Date	JUL 15 2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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JUL 20 2005

PATENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent No.: 6,903,537 Issue Date: 06/07/2005
5 App. No.: 10/605,721 Filing Date: 10/22/2003
Inventors : Guang-Nan Tzeng et al.
Examiner: Adolf Berhane Art Unit: 2838
Docket No.: AITP0001USA

10 Title: SWITCHING DC-TO-DC CONVERTER WITH MULTIPLE OUTPUT
VOLTAGES

To: Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

15

Subject: Request for Certificate of Correction under 37 CFR 1.322

Dear Sir :

20 Upon reviewing the above-identified patent, patentee noted the residence of the
inventor Chi-Yang Chen should be corrected. The filing receipt and assignment
indicate this as an Office mistake of consequence. As the agent of record, I hereby
request that a Certificate of Correction be issued under 37 CFR 1.322 to correct the
residence of the inventor Chi-Yang Chen from "Japan" to "Taiwan".

25

Attachments

- * A copy of the front page of the Patent 1 page
- * A copy of the filing receipt. 2 pages
- * A copy of assignment document 2 pages

30

JUL 20 2005

Respectfully submitted,

Winston Hsu

Date: JUL 15 2005

Winston Hsu, Patent Agent No. 41,526

5 P.O. BOX 506, Merrifield, VA 22116, U.S.A.

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- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)



US006903537B2

(12) **United States Patent**
Tzeng et al.

(10) Patent No.: **US 6,903,537 B2**
(45) Date of Patent: **Jun. 7, 2005**

(54) **SWITCHING DC-TO-DC CONVERTER WITH MULTIPLE OUTPUT VOLTAGES**

(75) Inventors: **Guang-Nan Tzeng, Hsin-Chu (TW); Tien-Tzu Chen, Taipei (TW); Chi-Yang Chen, Hsinchu (JP)**

(73) Assignee: **Aimtron Technology Corp., Hsinchu (TW)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/605,721**

(22) Filed: **Oct. 22, 2003**

(65) **Prior Publication Data**

US 2005/0088151 A1 Apr. 28, 2005

(51) Int. Cl.⁷ **G05F 1/40**

(52) U.S. Cl. **323/268**

(58) Field of Search **323/267, 268, 323/269, 282; 307/29, 33, 58, 82**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,610,452 A	*	3/1997	Shimer et al.	307/89
5,959,441 A		9/1999	Brown	
5,982,645 A	*	11/1999	Levran et al.	363/37
6,025,706 A		2/2000	Takimoto	
6,137,274 A		10/2000	Rajagopalan	
6,144,194 A		11/2000	Varga	

6,204,649 B1	*	3/2001	Roman	323/282
6,246,222 B1		6/2001	Nilles	
6,459,602 B1		10/2002	Lipscsi	
2004/0113495 A1	*	6/2004	Matsuo et al.	307/29

OTHER PUBLICATIONS

The UCC38C42 Family of High-Speed, BICMOS Current Mode PWM Controllers Application Note, Feb. 2002, pp. 1-19, Texas Instruments Incorporated, Dallas, Texas.
LM555 Timer, National Semiconductor, Feb. 2000, pp. 1-12, National Semiconductor Corporation, U.S.A.

* cited by examiner

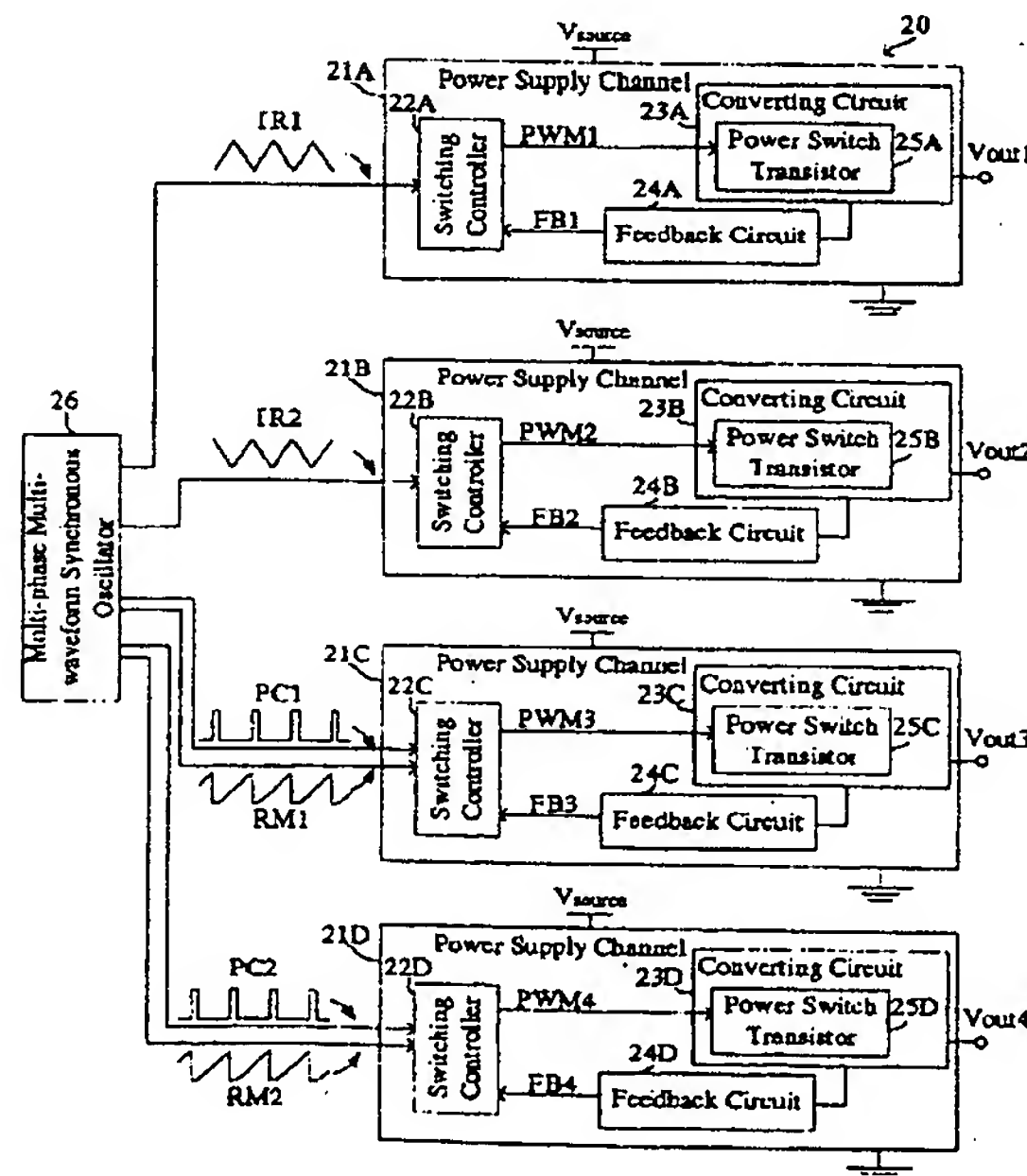
Primary Examiner—Adolf Berhane

(74) Attorney, Agent, or Firm—Winston Hsu

(57) **ABSTRACT**

A switching DC-to-DC converter includes multiple power supply channels, coupled in parallel between a DC voltage source and ground, for converting the DC voltage source into multiple DC output voltages that are separate from each other. An oscillator outputs multiple oscillating signals to render each of the multiple power supply channels make at least one switching transition differently in the time domain from others of the multiple power supply channels, thereby improving transient noise. The multiple oscillating signals include two triangular wave signals with a phase difference of 180 degrees and two pulse wave signals with a phase difference of 180 degrees. Rising edges of the two pulse wave signals occur simultaneously with either a peak or a valley of the two triangular wave signals, respectively.

32 Claims, 7 Drawing Sheets



JUL 20 2005

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/605,721	10/22/2003	2816	493	AITP0001USA	7	32	3

CONFIRMATION NO. 2720

027765
 NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE)
 P.O. BOX 506
 MERRIFIELD, VA 22116

FILING RECEIPT



11751035*

Date Mailed: 01/23/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Guang-Nan Tzeng, Hsin-Chu City, TAIWAN;
 Tien-Tzu Chen, Taipei City, TAIWAN;
 Chi-Yang Chen, Hsinchu County, TAIWAN;

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 01/22/2004

Projected Publication Date: 04/28/2005

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

SWITCHING DC-TO-DC CONVERTER WITH MULTIPLE OUTPUT VOLTAGES

Preliminary Class

JUL 20 2005

327

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15**

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JUL 20 2005

PATENTASSIGNMENT OF INVENTION

In consideration of the payment by ASSIGNEE to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration.

ASSIGNORS (Inventors):Name: Guang-Nan TZENGNationality: Taiwan, R.O.CAddress: 6F, No. 11, Alley 6, Lane 485, Sec. 1, Guangfu Rd., Hsinchu, Taiwan 300, R.O.C.Name: Tien-Tzu CHENNationality: Taiwan, R.O.CAddress: 3F, No. 48, Lane 188, Rueiguang Rd., Neihu Chiu, Taipei, Taiwan 114, R.O.C.Name: Chi-Yang CHENNationality: Taiwan, R.O.CAddress: 4F, No. 200, Sec. 1, Shengli 7th St., Jhubei City, Hsinchu County, Taiwan 302, R.O.C.

Hereby sells, assigns and transfers to AIMTRON TECHNOLOGY CORP.
(hereinafter 'Assignee'), of (Assignee address)

2F, No. 10, Prosperity Rd. II, Science-Based Industrial Park, Hsinchu, Taiwan 300, R.O.C.

, and the successors assigns and legal representatives of the ASSIGNEE the entire right, title, and interest in and to any and all improvements which are disclosed in the invention entitled:

SWITCHING DC-TO-DC CONVERTER WITH MULTIPLE OUTPUT VOLTAGES

Which is found in :

- (a) V U.S. patent application executed on even date
(b) _____ U.S. patent application executed on _____
(c) _____ U.S. application serial no. _____
(d) _____ patent no. _____ issued _____

JUL 20 2005

PATENT

and, in and to, all Letters Patent to be obtained for said invention by the above application or ant continuation, division, renewal, or substitute thereof, and as to letters patent any reissue or re-examination thereof

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ASSIGNOR further covenants that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the proposes thereof.

IN WITNESS WHEREOF, We have hereunto set hand and seal this 2003 / 12 / 15
(Date of signing).

(Type name of inventor)

Signature of INVENTOR

Guang-Nan TZENG

Guang - Nan Tseng

Tien-Tzu CHEN

Tien - Tzu Chen

Chi-Yang CHEN

Chi - Yang Chen